

Amendments to the Drawings:

The drawing sheet attached in connection with the above-identified application containing Figures 9 and 10 is being presented as a new formal drawing sheet to be substituted for the previously submitted drawing sheet.

Figure 10 has been amended to provide reference numeral for the boxes.

Specifically, Fig. 10 has been amended to include the reference numeral 82, 7, 9, 83, and 81.

REMARKS

Claims 10-34 were pending in the application. Claims 10, 14, 15, 17, 19, 20, and 22 have been amended. Claims 11-13, 18, 24, and 28-34 have been cancelled without prejudice or disclaimer. Claims 35-37 have been added. Therefore, claims 10, 14-17, 19-23, 25-27, and 35-37 are pending and are resubmitted for consideration.

I. Drawings

The drawings are objected to for failing to include labels for the “black boxes” in Figures 9 and 10. Applicant respectfully contends that Figure 9 is correct and submits that no changes are needed in Figure 9. Figure 10 has been revised to include the labels as requested by the Examiner. Therefore, Application respectfully requests reconsideration and withdrawal of the objection.

II. Rejection under 35 U.S.C. § 102(b) – Salomon

Claims 10-12 and 28-31 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,408,090 (hereinafter “Salomon”). Claims 11-12 and 28-31 have been cancelled. Therefore, the rejection will be addressed with respect to claim 10. The rejection should be withdrawn for at least the following reasons.

A. The Claims

Amended independent claim 10 recites a method of placing components on at least one substrate by a plurality of placement machines located side by side that comprises:

- picking up a first component with a first placement machine;
- placing the first component on a substrate;
- imaging the first component placed on the substrate;
- determining, using the image of the first component, if any difference exists between an actual position of the first component on the substrate and a predetermined desired position of the first component on the substrate;
- picking up a second component with a second placement machine; and
- placing the second component at another desired position on the substrate, while taking into account any such difference of the actual

position of the first component on the substrate and the predetermined desired position of the first component on the substrate.

New claim 35 depends from claim 10.

The rejection should be withdrawn at least because Salomon fails to teach or suggest a method of placing components on a substrate that comprises, among other things: (1) a plurality of placement machines located side by side; or (2) placing the second component at another desired position on the substrate, while taking into account any such difference of the actual position of the first component on the substrate and the predetermined desired position of the first component on the substrate.

B. Salomon

Salomon discloses an automatic equipping unit that comprises an equipping head 4, a control unit 7, a position sensor (camera) 10, substrate 2, and components 15, 16. *See* Salomon at Fig. 1. In Salomon, an image evaluation unit compares the predetermined position with the actual position of the component. When a positive result occurs, the equipping process continues. When a negative result occurs, an error message is generated to remove the improperly equipped substrate, and/or a neural network training occurs. *See* Salomon at col. 3, lines 22-30 and 48-51.

Salomon clearly does not disclose “a plurality of placement machines located side by side” as recited in claim 10. Furthermore, Salmon does not teach placing a second component with a *second placement machine* “while taking into account any such difference of the actual position of the first component on the substrate and the predetermined desired position of the first component on the substrate” as recited in claim 10. Salomon merely discloses a single equipping head 4. Thus, the rejection of claim 10 under 35 U.S.C. § 102(b) is improper. Applicant respectfully requests reconsideration and withdrawal of the rejection.

New claim 35 depends from claim 10 and is allowable therewith, for at least the reasons set forth above, without regard to the further patentable subject matter set forth in this dependent claim.

III. Rejection under 35 U.S.C. § 103(a) – Van De Van & Salomon

Claims 10-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,880,849 (hereinafter “Van De Ven”) in view of Salomon. The rejection should be withdrawn for at least the following reasons.

A. The Claims

Amended independent claim 10 recites a method of placing components on at least one substrate by a plurality of placement machines located side by side that comprises:

- picking up a first component with a first placement machine;
- placing the first component on a substrate;
- imaging the first component placed on the substrate;
- determining, using the image of the first component, if any difference exists between an actual position of the first component on the substrate and a predetermined desired position of the first component on the substrate;
- picking up a second component with a second placement machine;
- and
- placing the second component at another desired position on the substrate, while taking into account any such difference of the actual position of the first component on the substrate and the predetermined desired position of the first component on the substrate.

Amended independent claim 17 recites a method of placing components on substrates by a plurality of placement machines located side by side that comprises:

- picking up a plurality of first components with at least one first placement machine;
- placing the plurality of first components at substantially the same positions on corresponding substrates;
- imaging the first components placed on the substrates;
- determining, using the images of the first components, if any difference(s) exists between an actual position of each of the first components on the corresponding substrates and predetermined desired positions of each of the first components on the corresponding substrates;
- picking up at least one second component with at least one second placement machine; and
- placing the at least one second component at another desired position on one of the substrates, while taking into account any such difference of the actual position of each of the first components on

the corresponding substrates and the predetermined desired positions of each of the first components on the corresponding substrates.

Amended independent claim 22 recites a method of placing components on at least one substrate by a plurality of placement machines located side by side that comprises:

picking up a plurality of first components with at least one first placement machine;

placing the plurality of first components on a substrate;

imaging the first components placed on the substrate;

determining, using the images of the first components, if any difference(s) exists between an actual position of each of the first components on the substrate and a predetermined desired position of each of the first components on the substrate;

picking up a second component with a second placement machine; and

placing the second component at another desired position on the substrate, while taking into account any such difference of the actual position of each of the first components on the substrate and the predetermined desired position of each of the first components on the substrate.

The rejection should be withdrawn at least because Van De Ven and Salomon, taken together or separately, fail to teach or suggest a method that comprises, among other things:

(1) “placing the second component at another desired position on the substrate, while taking into account any such difference of the actual position of the first component on the substrate and the predetermined desired position of the first component on the substrate” (claim 10);

(2) “placing the at least one second component at another desired position on one of the substrates, while taking into account any such difference of the actual position of each of the first components on the corresponding substrates and the predetermined desired positions of each of the first components on the corresponding substrates” (claim 17); or

(3) “placing the second component at another desired position on the substrate, while taking into account any such difference of the actual position of each of the first components on the substrate and the predetermined desired position of each of the first components on the substrate” (claim 22).

B. The References

Van De Ven discloses a component placement machine with a plurality of component placement units 24. Each placement unit 24 includes a placement head 28, nozzle 29, image processor 31, and imaging devices 30, 32. *See* Van De Ven at Fig. 2. In Van De Ven, data comparing the position of a component with a desired position of the component occurs before the component is ever placed on the substrate. *See* Van De Ven at col. 2, lines 56-58. The imaging processor 31 and imaging devices 30, 32 of a first placement unit 24 does **not** interact with a second placement unit. Thus, Van De Ven does not teach placing a second component with *a second placement machine* while taking into account any difference of the actual position of a first component (placed by *a first placement machine*) on the substrate and the predetermined desired position of the first component on the substrate.

Salomon fails to cure the deficiencies of Van De Ven. Salomon also fail to disclose placing a second component on a substrate *with a second placement machine* while taking into consideration any difference of the actual position of a first component on the substrate and the predetermined desired position of the first position on the substrate that was placed with *a first placement machine*. Salomon merely discloses a single equipping head 4.

Furthermore, even assuming arguendo that one of ordinary skill in the art would have been motivated to modify Van De Ven with Salomon, the resulting combination would merely teach a method that uses the difference between an actual position of a component placed by a placement machine and a predetermined desired position to improve the placement of another component placed with *the same placement machine*, not with placement by a second (different placement machine). Thus, Applicant respectfully contends that the rejection of claims 10, 17, and 22 is improper under 35 U.S.C. § 103(a). Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claims 14-16, 19-21, 23, 25-27, and new claims 35-37 depend from claim 10, claim 17, or claim 22 and are allowable therewith, for at least the reasons set forth above, without regard to the further patentable subject matter set forth in these dependent claims.

IV. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application, as amended, is respectfully requested.

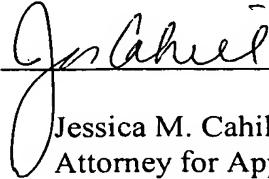
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4776
Facsimile: (202) 672-5399

By 

Jessica M. Cahill
Attorney for Applicant
Registration No. 56,986